Amendments

to the

Water Quality Control Plan – Los Angeles Region

With respect to

Inland Surface Water Ammonia Objectives

April 25, 2002

Amendments:

Chapter 3. Water Quality Objectives

Ammonia

Ammonia is a pollutant routinely found in the wastewater effluent of Publicly Owned Treatment Works (POTWs), in landfill-leachate, as well as in run-off from agricultural fields where commercial fertilizers and animal manure are applied. Ammonia exists in two forms – un-ionized ammonia (NH_3) and the ammonium ion (NH_4^+). They are both toxic, but the neutral, un-ionized ammonia species (NH_3) is highly toxic to fish and other aquatic life. The ratio of toxic NH_3 to total ammonia (NH_4^+ + NH_3) is primarily a function of pH, but it is also affected by temperature and other factors. Additional impacts can also occur as the oxidation of ammonia lowers the dissolved oxygen content of the water, further stressing aquatic organisms. Ammonia also combines with chlorine (often both are present) to form chloramines – persistent toxic compounds that extend the effects of ammonia and chlorine downstream.

Oxidation of ammonia to nitrate may lead to groundwater impacts in areas of recharge.

The acute objective is dependent on pH and fish species (salmonids present or absent), but not temperature. The chronic objective is dependent on pH and temperature. At lower temperatures, the chronic objective also is dependent on the presence or absence of early life stages of fish (ELS). The chronic objective includes limits based on a 30-day averaging period and limits based on a 4-day averaging period.

In order to protect aquatic life, ammonia concentrations in ~~receiving~~ inland surface waters characteristic of freshwater (as determined by the ~~guidelines~~implementation provisions below) shall not exceed the values ~~listed~~ calculated for the ~~corresponding~~ appropriate instream conditions using the equations below and shown in Tables 3-1 to 3-3 ~~3-4~~ (per U.S. EPA's most recent criteria guidance document, "1999 Update of Ambient Water Quality Criteria for Ammonia").

~~Timing of compliance with this objective will be determined on a case-by-case basis. Dischargers will have up to 8 years following the adoption of this plan by the Regional Board to (i) make the necessary adjustments/improvements to meet these objectives or (ii) to conduct studies leading to an approved site-specific objective for ammonia. If it is determined that there is an immediate threat or impairment of beneficial uses due to ammonia, the objectives in Tables 3-1 and 3-4 shall apply.~~

~~In order to protect underlying groundwater basins, ammonia shall not be present at levels that when oxidized to nitrate, pose a threat to groundwater.~~

1. *The one-hour average concentration of total ammonia as nitrogen (in mg N/L) shall not exceed~~, more than once every three years on the average~~, the ~~CMC (~~acute objective (CMC)[1] ~~criterion)~~ calculated using the following equations.*

   Where salmonid fish are present:

$$CMC = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

   Or where salmonid fish are not present:

$$CMC = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

2. *The thirty-day average concentration of total ammonia as nitrogen (in mg N/L) shall not exceed~~, more than once every three years on the average~~, the ~~CCC (~~chronic objective (CCC)[2] ~~criterion)~~ calculated using the following equations.*

   Where early life stages of fish are present:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * MIN\left(2.85, 1.45 * 10^{0.028*(25-T)}\right)$$

   Or where early life stages of fish are not present:

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}}\right) * 1.45 * 10^{0.028*(25-MAX(T,7))}$$

Where T = temperature expressed in ^{o}C.

[1] CMC = Criteria Maximum Concentration.
[2] CCC = Criteria Continuous Concentration.

3. In addition, the highest four-day average within the 30-day period shall not exceed 2.5 times the ~~CCC~~chronic objective.

For inland surface waters characteristic of saltwater (as determined by the ~~guidelines~~implementation provisions below), concentrations of total ammonia as nitrogen shall not exceed the following[3]:

1. A six-month median of 0.60 μg/L
2. A daily maximum of 2.40 μg/L
3. An instantaneous maximum of 6.00 μg/L

The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. The daily maximum shall apply to flow weighted 24-hour composite samples. The instantaneous maximum shall apply to grab sample determinations.

In order to protect underlying groundwater basins, ammonia shall not be present at levels that when oxidized to nitrate, pose a threat to groundwater.

[Delete existing Tables 3-1 through 3-4 and replace with the following:]

[3] Taken from the "Water Quality Control Plan for Ocean Waters of California" (California Ocean Plan) (2001).

Table 3-1. Acute Objective: Selected Values for One-hour Average Concentration for Ammonia

CMC, mg N/L		
pH	**Salmonids Present**	**Salmonids Absent**
6.5	32.60	48.80
6.6	31.30	46.80
6.7	29.80	44.60
6.8	28.10	42.00
6.9	26.20	39.10
7.0	24.10	36.10
7.1	22.00	32.80
7.2	19.70	29.50
7.3	17.50	26.20
7.4	15.40	23.00
7.5	13.30	19.90
7.6	11.40	17.00
7.7	9.65	14.40
7.8	8.11	12.10
7.9	6.77	10.10
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia

Table 3-2. Chronic Objective (ELS Present): Selected Values for 30-day Average Concentration for Ammonia

CCC for Fish Early Life Stages Present, mg N/L										
	Temperature, °C									
pH	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia

Table 3-3. Chronic ~~Criteria~~ Objective (ELS Absent): Selected Values for 30-day Average Concentration for Ammonia

CCC for Fish Early Life Stages Absent, mg N/L

	Temperature, °C									
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15***	**16**
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.86	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

* At 15 C and above, the chronic objective for ELS absent is the same as that for ELS present.

Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia

IMPLEMENTATION

Implementation Provisions for the Application of Ammonia Objectives to Inland Surface Waters in the Los Angeles Region

Selection of Freshwater vs. Saltwater Objectives[4]

(1) For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the applicable objectives are the freshwater objectives. (2) For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, the applicable objectives are the saltwater objectives. (3) For waters in which the salinity is between 1 and 10 parts per thousand, the applicable objectives are the more stringent of the freshwater or saltwater objectives. However, the Regional Board may by adoption of a resolution at a publicly noticed Board meeting approve the use of the alternative freshwater or saltwater objectives for an enclosed bay or estuary with findings that scientifically defensible information and data demonstrate that on a site-specific basis the biology of the water body is dominated by freshwater aquatic life and that freshwater objectives are more appropriate; or conversely, the biology of the water body is dominated by saltwater aquatic life and that saltwater objectives are more appropriate.

Selection of Acute Objective – ~~Warm vs. Cold~~Salmonids Present vs. Salmonids Absent

It is assumed that salmonids may be present in waters designated in the Basin Plan as "COLD" and that salmonids are absent in waters not designated in the Basin Plan as "~~WARM~~COLD," in the absence of additional information to the contrary.

Selection of Chronic Objective – ELS Provision

All inland surface water bodies in the Los Angeles Region are assumed to support Early Life Stages (ELS) of fish. A site-specific study is required in order to invoke the ELS absent provision for a water body. Water bodies with a Basin Plan designation of ~~existing for~~ "SPWN" support high quality aquatic habitats suitable for reproduction and early development of fish and, therefore, these water bodies are designated as ELS present waters, regardless of whether a site-specific study is conducted.

Existence of Threatened or Endangered Species

Where endangered or threatened species in the Los Angeles Region may be more sensitive to a pollutant than the species upon which the objectives are based, more stringent, site-specific modifications of the ~~criteria~~ objectives shall performed using one of two methods.[5]

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[4] The procedure described in this section to determine whether freshwater or saltwater objectives should be applied is the same method employed in the California Toxics Rule California Toxics Rule (title 40, Code of Federal Regulations, § 131.38(c)(3)) .

[5] 1) If the CMC is greater than 0.5 times the Species Mean Acute Value (SMAC) for a threatened or endangered species, or a surrogate for such species, then the CMC should be reset to 0.5 times the SMAC. If the CCC is greater than the Species Mean Chronic Value (SMCV) of a threatened or endangered species, or surrogate, then the CCC should be reset to that SMCV. If the SMCV is not available, then the CCC can be reset by dividing the SMAC by the Acute to Chronic Ratio~~n~~ (ACR) in

Translation of Objectives into Effluent Limits[6]

If the Regional Board determines that water quality based effluent limitations are necessary to control ammonia in a discharge, and a Total Maximum Daily Load (TMDL) for ammonia is not in effect, the permit shall contain effluent limitations for ammonia using one of the following methods:

1. Use the following procedure based on a steady-state model:

Step 1: Identify the applicable water quality objectives for ammonia.

Step 2: For each water quality objective, calculate the effluent concentration allowance (ECA) using the following steady-state mass balance model:

If a mixing zone has not been authorized by the Regional Board:

$$ECA = WQO$$

If a mixing zone has been authorized by the Regional Board.[7]

$$ECA = \frac{WQO(Qd + Qs) - (CsQs)}{Qd}$$

Where WQO = water quality objective
Cs = Pollutant Concentration of Upstream (mg/L)
Qd = Flow Discharge (mgd or cfs)
Qs = Flow Upstream (mgd or cfs)

For the acute objective (CMC), one of the following shall be used for the Qs term:

1. *the lowest one-day flow based on a three-year return interval (1B3) when flow records are analyzed using EPA's 1986 DFLOW procedure.*[8]
2. *the lowest one-day flow based on a ten-year return interval (1Q10) when flow records are analyzed using extreme-value statistics.*[9]

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accordance with U.S. EPA's "Guidance for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses" (1985).

2) More stringent, site-specific modifications may be calculated to protect a listed endangered or threatened species by using the recalculation procedure described in Chapter 3 of the "U.S. EPA Water Quality Standards Handbook, Second Edition – Revised" (1994).

[6] The method whereby objectives are translated to effluent limits is similar to the method contained in the "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (2000). The method is also consistent with that outlined in the U.S. EPA "Technical Support Document for Water Quality-based Toxics Control.

[7] Mixing zones are authorized on a discharge-by-discharge basis per the mixing zone provision in Chapter 4 of the Basin Plan.

[8] U.S. EPA procedure that counts each low flow value during the year and treats it as a separate event.

3. Other appropriate critical flow condition.

For the chronic objective (CCC), one of the following shall be used for the Qs term:

1. the lowest 30-day flow based on a three-year return interval (30B3) when flow records are analyzed using EPA's 1986 DFLOW procedure or
2. the 30Q10 or the 30Q5 (lowest 30-day flow based on a ten or five-year return interval) when flow records are analyzed using extreme-value statistics.
3. Other appropriate critical flow condition.

Effluent concentration allowances based on a critical condition of 30Q10 are protective of both the 30-day average and the 4-day average. If a 30Q5 is used, it must be demonstrated that the 7Q10 (seven-day low flow which recurs once every ten years on the average) is protective of 2.5 times the CCC, to ensure that short-term (4-day) chronic toxicity does not occur. The more stringent (i.e. lower) of the 30Q5 or the 7Q10 shall be used.

Step 3: For each ECA calculated in Step 2, determine the long-term average discharge condition (LTA) by multiplying the ECA with a factor (multiplier) that adjusts for effluent variability. The multiplier shall be calculated as described below, or shall be found in Table 3-4. To use Table 3-4, the coefficient of variation (CV)[10] for the effluent ammonia concentration must first be calculated. If (a) the number of effluent data points is less than 10, or (b) at least 80 percent of the effluent data are reported as not detected, then the CV shall be set equal to 0.6. When calculating the CV in this procedure, if a data point is below the detection limit in an effluent sample, one-half the detection limit shall be used as the value in the calculation. Multipliers for acute, sub-chronic, and chronic objectives for ammonia that correspond to the CV can be found in Table 3-4.

ECA Multipliers:

$$\text{ECA multiplier}_{acute99} = e^{\left(0.5\sigma^2 - z\sigma\right)}$$

$$\text{ECA multiplier}_{sub\text{-}chronic99} = e^{\left(0.5\sigma_4^2 - z\sigma_4\right)}$$

$$\text{ECA multiplier}_{chronic99} = e^{\left(0.5\sigma_{30}^2 - z\sigma_{30}\right)}$$

[9] U.S.G.S. procedure that counts only one value per year, the lowest daily flow in that year, and therefore does not consider the duration of such low flows that may occur in each year.

[10] The coefficient of variation (CV) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Where σ = standard deviation

$$\sigma = \left[\ln\left(CV^2+1\right)\right]^{0.5}$$

$$\sigma^2 = \ln\left(CV^2+1\right)$$

$$\sigma_4 = \left[\ln\left(CV^2/4+1\right)\right]^{0.5}$$

$$\sigma_4^2 = \ln\left(CV^2/4+1\right)$$

$$\sigma_{30} = \left[\ln\left(CV^2/30+1\right)\right]^{0.5}$$

$$\sigma_{30}^2 = \ln\left(CV^2/30+1\right)$$

z = 2.326 for 99th percentile probability basis

LTA Equations:

$LTA_{acute99}$ = ECA_{acute} * ECA $multiplier_{acute99}$

$LTA_{sub\text{-}chronic99}$ = $ECA_{sub\text{-}chronic}$ * ECA $multiplier_{sub\text{-}chronic99}$

$LTA_{chronic99}$ = $ECA_{chronic}$ * ECA $multiplier_{chronic99}$

Step 4: Select the lowest (most limiting) of the LTAs derived in Step 3 (LTA_{min}).

Step 5: Calculate water quality based effluent limitations (a maximum daily effluent limitation, MDEL, and an average monthly effluent limitation, AMEL) by multiplying LTA_{min} (as selected in Step 4) with a factor (multiplier) that adjusts the averaging period and exceedance frequency of the objective, and the effluent monitoring frequency, as follows:

MDEL and AMEL Equations:

MDEL = LTA_{min} * MDEL $multiplier_{99}$

AMEL = LTA_{min} * AMEL $multiplier_{95}$

The MDEL and AMEL multipliers shall be calculated as described below, or shall be found in Table 3-5 using the previously calculated CV and monthly sampling frequency (n) of ammonia in the effluent. If the LTA_{min} selected in Step 4 is $LTA_{sub\text{-}chronic99}$ and the sampling frequency is four times per month or less, then n shall be set equal to 4. If the LTA_{min} selected in Step 4 is $LTA_{chronic99}$ and the sampling frequency is 30 times per month or less, then n shall be set equal to 30.

MDEL and AMEL Mulitipliers:

MDEL multiplier$_{99}$ = $e^{\left(z\sigma - 0.5\sigma^2\right)}$

Where *z = 2.326 for 99th percentile probability basis*

$$\sigma = \left[\ln\left(CV^2 + 1\right)\right]^{0.5}$$

$$\sigma^2 = \ln\left(CV^2 + 1\right)$$

AMEL multiplier$_{95}$ = $e^{\left(z\sigma_n - 0.5\sigma_n^2\right)}$

Where *z = 1.645 for 95th percentile probability basis*

$$\sigma_n = \left[\ln\left(CV^2 / n + 1\right)\right]^{0.5}$$

$$\sigma_n^2 = \ln\left(CV^2 / n + 1\right)$$

n = number of samples per month

2. Apply a dynamic model approved by the Regional Board.

Table 3-4 - Effluent Concentration Allowance (ECA)
Multipliers for Calculating Long-Term Averages (LTAs)

Coefficient of Variation (CV)	Acute Multiplier	Chronic Multiplier	Chronic Multiplier
	99th Percentile Occurrence Probability	99th Percentile Occurrence Probability 4 day	99th Percentile Occurrence Probability 30 day
0.1	0.797	0.891	0.959
0.2	0.643	0.797	0.919
0.3	0.527	0.715	0.882
0.4	0.440	0.643	0.846
0.5	0.373	0.581	0.812
0.6	0.321	0.527	0.78
0.7	0.281	0.481	0.75
0.8	0.249	0.440	0.721
0.9	0.224	0.404	0.693
1.0	0.204	0.373	0.667
1.1	0.187	0.345	0.642
1.2	0.174	0.321	0.619
1.3	0.162	0.300	0.596
1.4	0.153	0.281	0.575
1.5	0.144	0.264	0.555
1.6	0.137	0.249	0.535
1.7	0.131	0.236	0.517
1.8	0.126	0.224	0.5
1.9	0.121	0.214	0.483
2.0	0.117	0.204	0.468
2.1	0.113	0.195	0.453
2.2	0.110	0.187	0.438
2.3	0.107	0.180	0.425
2.4	0.104	0.174	0.412
2.5	0.102	0.168	0.4
2.6	0.100	0.162	0.388
2.7	0.098	0.157	0.377
2.8	0.096	0.153	0.366
2.9	0.094	0.148	0.356
3.0	0.093	0.144	0.346
3.1	0.091	0.141	0.337
3.2	0.090	0.137	0.328
3.3	0.089	0.134	0.32
3.4	0.088	0.131	0.312
3.5	0.087	0.128	0.304
3.6	0.086	0.126	0.297
3.7	0.085	0.123	0.29
3.8	0.084	0.121	0.283
3.9	0.083	0.119	0.277
4.0	0.082	0.117	0.271

Table 3-5 - Long Term Average (LTA) Multipliers for Calculating Effluent Limitations

Coefficient of Variation	MDEL Multiplier	AMEL Multiplier		
	99th Percentile Occurrence Probability	95th Percentile Occurrence Probability		
(CV)		n=4	n=8	n=30
0.1	1.25	1.08	1.06	1.03
0.2	1.55	1.17	1.12	1.06
0.3	1.90	1.26	1.18	1.09
0.4	2.27	1.36	1.25	1.12
0.5	2.68	1.45	1.31	1.16
0.6	3.11	1.55	1.38	1.19
0.7	3.56	1.65	1.45	1.22
0.8	4.01	1.75	1.52	1.26
0.9	4.46	1.85	1.59	1.29
1.0	4.90	1.95	1.66	1.33
1.1	5.34	2.04	1.73	1.36
1.2	5.76	2.13	1.80	1.39
1.3	6.17	2.23	1.87	1.43
1.4	6.56	2.31	1.94	1.47
1.5	6.93	2.40	2.00	1.50
1.6	7.29	2.48	2.07	1.54
1.7	7.63	2.56	2.14	1.57
1.8	7.95	2.64	2.20	1.61
1.9	8.26	2.71	2.27	1.64
2.0	8.55	2.78	2.33	1.68

If a Total Maximum Daily Load (TMDL) for ammonia is in effect, the permit shall contain effluent limitations for ammonia that are based on the allocation for ammonia in the TMDL. The allocation to a permitee would then be translated into an effluent concentration to determine the effluent limits for the permit.